

## Claims

1. Device for fixing bones with
  - A) an intramedullary pin (1) with at least one transverse borehole (2) with a central axis (3) and
  - B) a bone fixation agent (4) with a front end (6) and a rear end (5) intended for introducing the medullary pin (1) into the transverse borehole (2), characterized in that
  - c) the bone fixation agent (4) can be expanded elastically.
2. The device of claim 1, characterized in that the bone fixation agents (4) include a central axis (3), a cylindrical all prismatic shaft (18) coaxial at the rear end (5) and a sheath (7), which can be expanded elastically, coaxially at the front end (6).
3. The device of claim 2, characterized in that a second, expandable sheath (25) is disposed on the first sheath (7) coaxially with the central axis (3).
4. The device of claims 2 or 3, characterized in that the sheath (7) is produced from a metal, preferably from titanium.
5. The device of claims 3 or 4, characterized in that the second sheath (25) is produced from a plastic, preferably from an elastomer.
6. The device of claim 5, characterized in that the second sheath (25) is sprayed onto the first sheath (7).
7. The device of one of the claims 3 to 5, characterized in that the second sheath (25) can be pressed onto the first sheath (7).

8. The device of one of the claims 3 to 5, characterized in that the second sheath (25) can be screwed onto the first sheath (7).

9. The device of one of the claims 3 to 5, characterized in that the second sheath (25) can be glued onto the first sheath (7).

10. The device of one of the claims 2 to 9, characterized in that the shaft (18) and the sheath (7) are separate parts, which can be connected coaxially with one another.

11. The device of one of the claims 1 to 10, characterized in that it includes a rotation safeguard (21), by means of which the bone fixation agents (4) can be fixed in the transverse borehole (2) of the medullary pin (1) so that they cannot rotate about the central axis (3).

12. The device of one of the claims 2 to 11, characterized in that the sheath (7) has an external thread (9).

13. The device of one of the claims 2 to 11, characterized in that the sheath (7) is configured as a blade (26).

14. The device of one of the claims 3 to 13, characterized and that the second sheath (25) has an external thread.

15. The device of one of the claims 3 to 13, characterized in that the second sheath (25) is constructed as a blade.

16. The device of one of the claims 1 to 15, characterized in that it includes expansion agents (8), which can be moved coaxially with the transverse borehole (2).

17. The device of claim 16, characterized in that the expansion agents (8) pass axially through the bone fixation agent (4) and, at the front end (6) of the bone fixation agents (4), have a cone (13), which tapers towards the rear end (5) of the bone fixation agents (4).

18. The device of claim 16, characterized in that the expansion agents (8) pass through the bone fixation agents (4) coaxially and the inner wall of the sheath (7) includes an inner cone (12), which expands towards the rear end (5) of the bone fixation agent (4), against which the expansion agents (8) can be shifted axially.

19. The device of one of the claims 2 to 18, characterized in that the shaft (18) can be connected with the sheath (7) by means of a press fit.

20. The device of one of the claim 16 to 19, characterized in that the expansion agents (8) can be shifted by means of a threaded connection between the shaft (18) and the expansion agents (8) coaxially with the central axis (3).

21. The device of one of the claims 16 to 19, characterized in that the expansion agents (8) can be shifted coaxially with the central axis (3) by means of a threaded connection between the sheath (7) and the expansion agents (8).

22. The device of one of the claims 1 to 21, characterized in that it includes additionally a second bone fixation agent (4).

23. An elastically expandable sheath (7), characterized in that it includes an external thread (9), a central borehole (11) coaxial with the central axis (3) and a slot (24), the slot (24) passing through the sheath (7) perpendicularly to the central axis (3) and penetrating into the sleeve (7) parallel to the central axis (3).